

## ABSTRACT

A method for calculating the capacitance of a transducer ( $C_0$ ) without knowing the exact resonance frequency of a transducer/blade combination is achieved by sweeping across a broad frequency range which contains resonant and non-resonant frequencies where  $C_0$  can be measured. A pre-defined frequency range is set independently of the resonance frequency of a specific transducer/blade combination.  $C_0$  of the transducer/blade is measured at several different frequencies within the pre-defined frequency range to ensure that invalid  $C_0$  measurements are disregarded, and the temperature of the transducer is calculated based on valid  $C_0$  measurements. The determined transducer temperature, based on  $C_0$  measurements, can be used to optimize performance and/or provide a safety shutdown mechanism for the generator.